

## SUPPLEMENTARY DATA

### Supplementary Table S1. Baseline characteristics of study participants.

No. of subjects	12*
Gender (M/F)	8/4
Age (years)	15.4±2.6
BMI (kg/m <sup>2</sup> )	21.4±2.7
BMI z-score	0.57±0.80
Glycated haemoglobin at screening (%)	8.3 ± 0.9
Glycated haemoglobin at screening (mmol/mol)	68±10
Duration of diabetes (years)	8.2±3.4
Duration on pump (years)	5.6±2.9
Total daily insulin dose (U/kg/day)	0.84±0.22

\*All C-peptide negative at non-hypoglycaemia (C-peptide less than 33pmol/l at fingerstick glucose equal or greater than 4mmol/l) except for one participant with a level of 262 pmol/l

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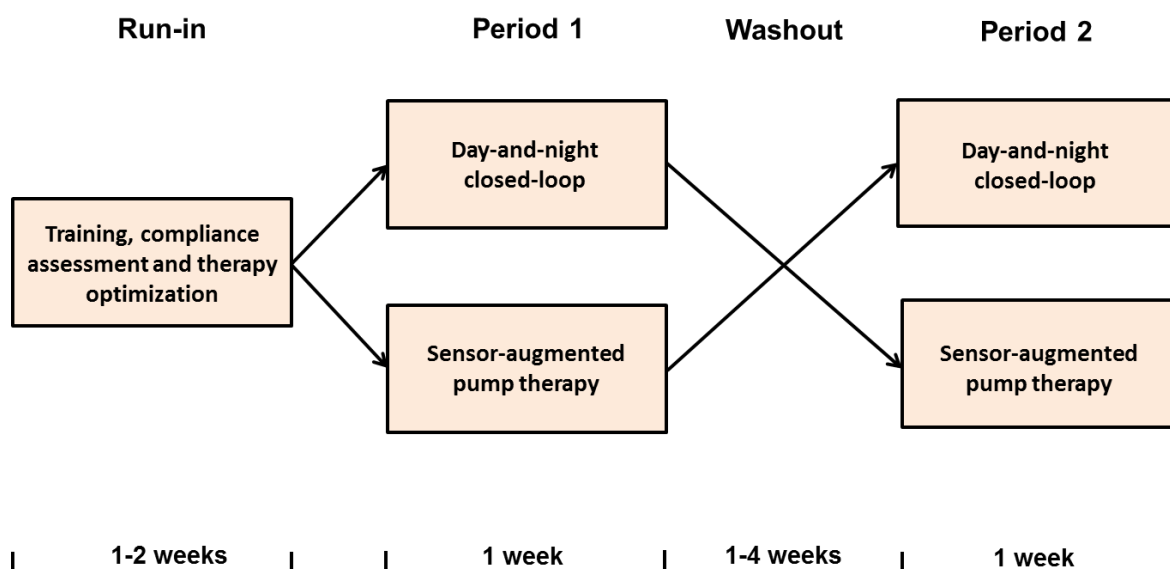
**Supplementary Table S2. Daytime and night-time glucose control and insulin delivery during closed-loop and control period.**

	Closed-loop (n=12)	Control (n=12)
<b>Daytime (from 08:01 to 23:59)</b>		
Time spent at glucose level (%)		
3.9 to 10.0mmol/l	66 (55 to 68)	49 (46 to 51)
>10.0mmol/l	31 (29 to 44)	48 (40 to 53)
<3.9mmol/l	2.5 (1.2 to 4.4)	2.4 (0.7 to 4.5)
AUC <sub>day</sub> <3.5mmol/l (mmol/l x min)*	6.4 (1.0 to 12.1)	4.4 (0.0 to 9.9)
Mean glucose (mmol/l)	9.4±1.2	10.3±1.4
Within day SD of glucose (mmol/l)	3.1 (3.0 to 3.6)	3.4 (3.1 to 3.8)
CV of glucose within day (%)	35 (31 to 39)	33 (31 to 36)
CV of glucose between days (%)	18 (14 to 27)	21 (18 to 25)
Daytime insulin delivery (U)	44.5 (35.0 to 47.8)	44.3 (33.2 to 52.0)
<b>Night-time (from midnight to 08:00)</b>		
Time spent at glucose level (%)		
3.9 to 8.0mmol/l	63 (49 to 78)	40 (30 to 48)
>8.0mmol/l	31 (18 to 43)	56 (50 to 68)
<3.9mmol/l	2.3 (0.9 to 5.4)	1.1 (0.0 to 5.4)
AUC <sub>day</sub> <3.5mmol/l (mmol/l x min)*	6.1 (0.0 to 26.1)	2.3 (0.0 to 5.4)
Mean glucose (mmol/l)	7.8±1.8	9.7±1.8
Within night SD of glucose (mmol/l)	1.7 (1.4 to 2.2)	1.8 (1.6 to 1.9)
CV of glucose within night (%)	23 (22 to 26)	19 (17 to 22)
CV of glucose between nights (%)	26 (15 to 35)	31 (28 to 39)
Overnight insulin delivery (U)	11.5 (10.2 to 18.6)	11.3 (8.9 to 17.2)

Data are presented as mean±SD, median (interquartile range)

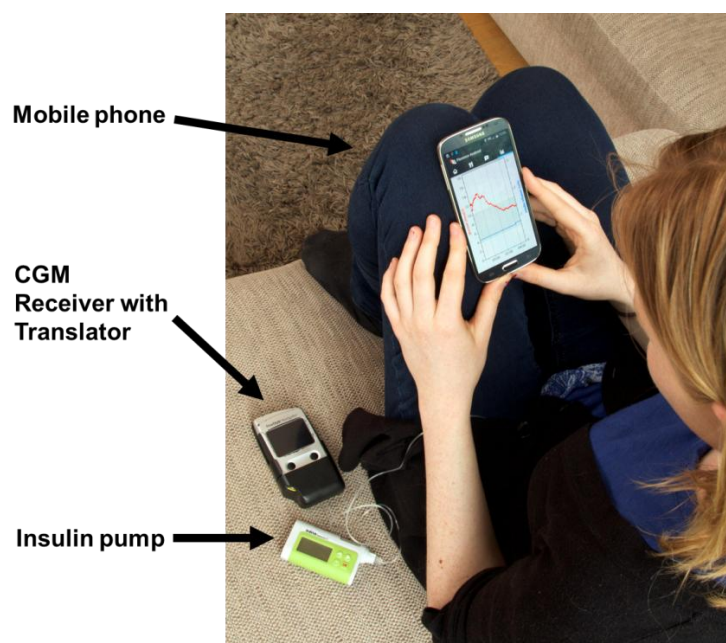
\*AUC<sub>day</sub>, glucose area under curve below 3.5mmol/l per day

**Supplementary Figure S1. Study design.**



## SUPPLEMENTARY DATA

**Supplementary Figure S2. Components of Florence D2A automated closed-loop system.**



**Supplementary Figure S3. Flow of participants through the trial.**

